

THE ROLE OF ICT IN ENRICHING LEARNING EXPERIENCES: THE OUM APPROACH

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INTRODUCTION

All educational provision should be of good quality. Poor provision makes it difficult for learners to learn and the worst scenario is when the learner is convinced that he/she cannot learn. So quality is the key issue in education, regardless of the mode, whether it be a traditional face-to-face or open and distance learning (ODL).

Since Open University Malaysia's (OUM) inception in the year 2000, students' enrolment has increased tremendously, and the 12,000 present population is expected to increase to 17,000 by the end of 2003. The number of programs will increase from 13 to 20, and the number of part-time tutors will be reaching the 700 mark. Clearly, while ODL is relatively new in Malaysia, it is becoming very popular and gaining wide acceptance as a "non-traditional" mode of accessing higher education. As all these numbers multiply, so too the challenges that confront OUM. Several factors are accelerating the need for distance learning in Malaysia and one of them is the use of accessible and user-friendly technology, or in a broader term, information and communication technology (ICT)

Rapid advances in ICT and easy access to the Internet and the Web are reshaping our education by providing new learning environments and new ways of learning. The characteristics of online learning are: interactive, collaborative, constructivist in approach and learner-centered. The major challenge for OUM in this respect is to effectively integrate technology and the appropriate pedagogy. OUM takes a systematic and a holistic approach; taking into consideration the infrastructure for support and also library services so that learners can readily interact online for various purposes. This includes inquiry, counseling, registration, assignment, quiz, examination, accessing learning materials, interacting with peers, tutors, subject matter experts and faculty alike.

OBJECTIVES OF PAPER

This paper discusses the use of ICT as a tool in catering for the various learning styles and needs of OUM learners in two areas. They are the Learning Management System (LMS) and the Digital Library. The philosophy, features and the issues and challenges of each area will be described in light of our experiences. Probable solutions and recommendations to the issues and challenges faced by OUM in its effort to develop and enhance learning experiences in the pursuit of knowledge are presented.

There are two categories of technology to support online learning: (i) Technology for developing learning programmes, and (ii) Technology for delivering learning programmes. This paper only addresses the technology for delivering programmes.

SOME DEFINITIONS

To get the discussion in the right perspectives, we offer definitions for distance education, open learning and open and distance learning.

1. Distance Education (DE)

DE is defined as an educational process in which a significant proportion of the teaching is conducted by someone removed in space and/or time from the learner (Perraton, 1982)

2. Open Learning (OL)

OL is defined as an organized educational activity, based on the use of teaching materials, in which constraints on study are minimized either in terms of access, or of time and place, pace, methods of study, or any combination of these (Perraton, 1997)

3. Open and Distance Learning (ODL)

Finally, ODL is defined as an educational activity that would fall within either of these definitions (Perraton, 2000)

PHILOSOPHY OF ODL

It is generally accepted that for ODL to be effective, it has to adopt the following philosophy (Quotations?):

1. Constructivist

ODL should promote learners as active agents in their own learning, i.e. in the construction of their own knowledge. It should provide both information and tools for learners to develop concepts and to test their understanding through carrying out tasks that use the concepts – by writing, by self-assessment, by carrying out experiments in virtual labs, by designing artifacts, analyzing, classifying, reporting and so on.

2. Collaborative

ODL should enable learners at various performance levels to work together in small groups towards achieving an academic goal. It should promote exchange of ideas in a small group, develops critical thinking skills and help learners to retain information longer than working as individuals. It should also encourage teamwork in developing group goals while retaining individual accountability

3. Interactive

To maintain learners' interest, ODL should provide a means of practice and reinforcement to them. Learners answer questions and get immediate feedback. They learn from images, both static and moving. They should be good interactivity in the form of open questions, simulations, tools and calculators. ODL should "engage the mind and not the mouse finger"

4. Self-managed

In ODL, learners learn on their own with minimal or without guidance of an instructor. They study at their own pace. ODL institutions assists their learners by providing self-study materials ranging from printed modules, audio and video tapes, CD-ROMs, to online learning (e-learning) platforms..

5. Learner-centered

ODL encourages learners to be responsible for their own learning goals and for the ways to realize them. It promotes active learning where learners search for new materials themselves in order to develop their competencies.

OUM AS AN OPEN LEARNING INSTITUTION

1. Brief History of OUM

The establishment of the Open University Malaysia (OUM), Malaysia's first open university marks another milestone in the progress of ODL in the Malaysian education industry. OUM was established on the 10th August, 2000 as the Malaysian seventh private university under the Private Higher Education Institution Act, 1996. Even though incorporated as a private university, OUM leverages on the quality, prestige and capabilities of its owners – a consortium of the first 11 Malaysian public universities.

The vision of OUM is to be a leader and innovator in Open Learning. Its mission are (1) to be the leading contributor in democratizing education; (2) to develop quality education through multimode learning technologies, and (3) to develop and enhance learning experiences towards the development of a knowledge-based society

Beginning with a modest intake of about 800 learners in August 2001, OUM now has almost 14,000 students. Currently, it offers 14 programmes at the Diploma, Bachelor and Masters Levels.

2. OUM's Delivery Modes

Being the first few universities in the country that offers open and distance learning, OUM experiences have been conceptually and operationally challenging. OUM offers a mixed mode of delivery that combines three important components, i.e. (i) the print modules, (ii) face-to-face tutorials and (iii) the internet-based support system for the e-learning (sometimes accompanied with interactive multimedia content on CDs and on the web) that provides continuous interaction between the learners and the faculty.

3. Nature of OUM's Students

In ODL, the needs of the learners are of utmost importance. For an ODL to implement its philosophy and achieve its objectives, it has to adequately meet the expectations of its learners. Currently, 80% of OUM's learners are working adults while the remaining 20% are fresh school leavers (after SPM).

AN INTERACTIVE LEARNING ENVIRONMENT: OUM'S LEARNER MANAGEMENT SYSTEM (LMS)

1. What is an LMS?

An LMS also popularly called an e-learning system, is an application that allows students, instructors and administrators to input information for the purpose of learning, support and keeping track of the learning process. Examples of internationally popular LMS are WebCT, Blackboard, SyllaBase, Ucompass, and FirstClass. Local institutions had also developed their own LMS. Examples of these are University of Malaya's (UM) Course OnLine (COL), Multimedia University's (MMU) Multimedia Learning System (MMLS), and University Tun Abdul Razak's (UNITAR) Virtual Online Instructional Support System (VOISS). OUM's LMS is adapted from MMU's MMLS.

2. Purpose of OUM's LMS

OUM's biggest challenge is in the development of its own LMS system. The series of functions such as e-mail, forum, bulletin boards, announcements, FAQ and many others have been painstakingly developed to provide various kinds of support to our learners. We have learnt that there is a tremendous need for a proper set up and management of this system in order to minimize dissatisfaction among learners and faculty alike. In the development process the following factors were given due consideration.

- a) Access to e-materials for its learners, instructors as well as institutions.
- b) Learners should be able to upload course content, tests, quizzes, and other support materials with the click of a mouse.
- c) OUM to track the progress of both the instructors and learners.
- d) OUM to manage courses such as updating course outline, posting important announcements, allowing students to register online and capturing learner profiles.

3. Features of LMS

OUM LMS is access from myOUM Home Page and it consists of two main pages: A Welcome Page and a Course Content Page. Figures 1 through 5 provide an overview of the features of OUM's LMS. A comparison of the features of OUM's LMS with MMU's MMLS and WebCT is given in Figure 6.

4. Problems in LMS

In the course of using LMS, OUM has encountered some problems. These problems are categorized into four main perspectives, namely, those of the learners, academic staff, technology and management/organization.

4.1 Learners Perspectives

- High cost of purchasing the computers and subscribing to Internet Service Providers (ISP);
- For those with computers and Internet access, the service provided by ISP is frequently slow and unreliable;
- Learners lack of IT competency;
- Learners' attitude against the use of ICT; and
- Time constraint for working adults

4.2 Academic staff's Perspectives

- Poor management of online interactions (e-mails and bulletin boards)
- Difficulty in tracking learners' academic progress (via threaded discussions and tests)
- Lack of IT competency
- Lack of online communication skills
- Staff attitude

4.3 Technology Perspectives

- Bandwidth problem
- Software problem (Expensive licensing)
- Congestion problem (Too many logons)

- The "last-mile" problem

4.4 Management/Organizational Perspectives

- Cost vs. accessibility
- Very time demanding
- Lack of IT skills
- Lack of online communication skills

OUM has decided to set up 30 learning centers all over Malaysia so that we could cater for the most number of students depending on the level of technology adoption and penetration. The "last mile" problem, the narrow bandwidth, low computer literacy and low access to computers are the barriers to full implementation of the e-learning.

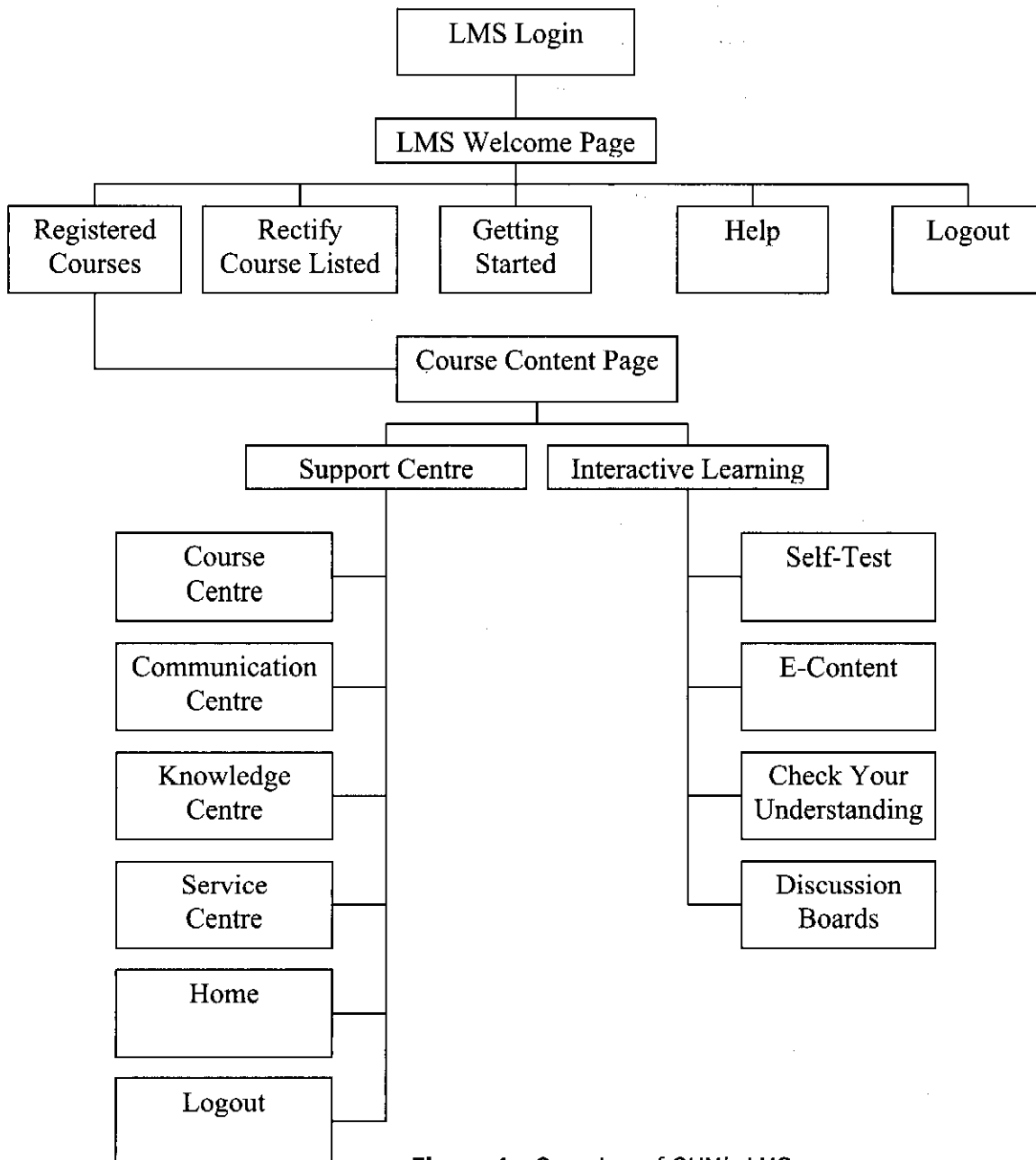


Figure 1: Overview of OUM's LMS

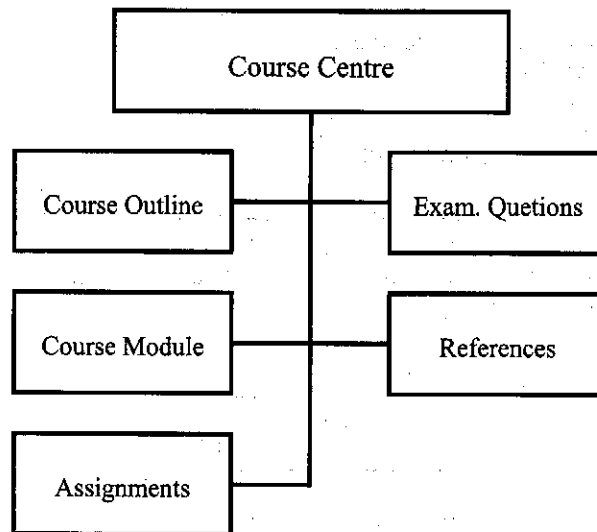


Figure 2: Course Centre

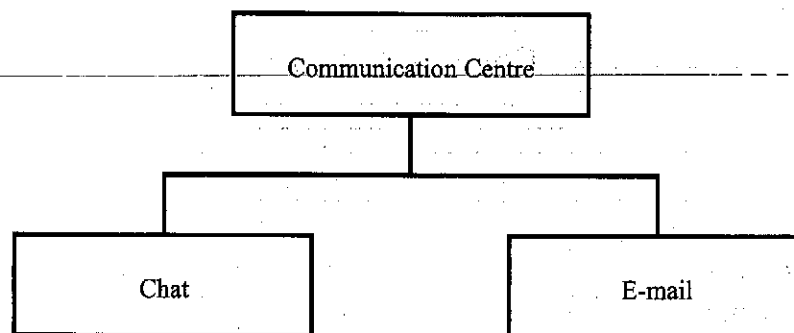


Figure 3: Communication Centre

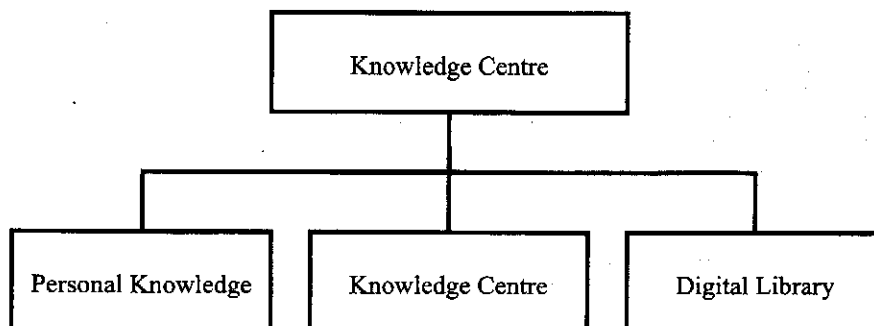


Figure 4: Knowledge Centre

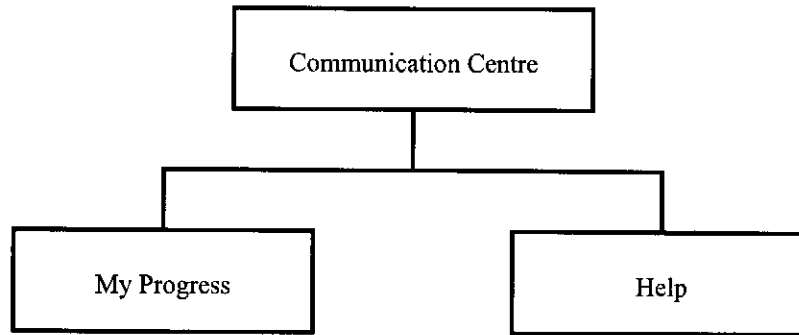


Figure 5: Service Centre

Features	OUM_LMS	MMLS	WebCT
Platform & database Independent	✱	✱	
Integration with student's database	✱		
No HTML Knowledge for quiz Material	✱	✱	✱
User Name and Password Security	✱	✱	✱
File Management for uploading to server	✱	✱	✱
Multiple file uploading and Auto sequencing	✱	✱	✱
Search Tool for Course Material			✱
Student can make Private Annotations for course material	✱	✱	✱
Student can share note with his/her learning community	✱		
Assignment Module	✱		
Question templates / bank	✱	✱	✱
Intelligent Navigation	✱	✱	
Online examination and Grading	✱	✱	✱
Feedback of content	✱	✱	
Students Tracking	✱	✱	✱
Graphical representation of grades/tracking data	✱	✱	
Email	✱	✱	✱
Forums		✱	✱
Chat	✱		✱
White Board			✱
Video Conferencing			✱
Bulletin Board		✱	✱
Bulletin Board according to learning unit	✱		
Bookmark	✱	✱	
Announcement	✱		

Figure 6: Comparison between OUM's LMS, MMLS and WebCT

KNOWLEDGE AT A CLICK OF A BUTTON:

OUM'S DIGITAL LIBRARY (DIGLIB)

The Digital Library of OU Malaysia supports the teaching, learning, instructional and research requirements in digital format as well as in print. It also provides virtual learning support and encourages the use of digital collections, anytime and anywhere.

1. Why Digital Library?

OUM learners, who are mainly working adults, are geographically distributed around the country. They have the option of learning from wherever they chose to be at any time according to their own pace. The widely dispersed student population would however still require information services for their learning and research activities. A digital library would provide the support for the required information services in a virtual learning environment.

2. Components of a Digital Library

Ideally, a digital library should have the following components: Technical infrastructure, knowledge databases and user education. Figure 7 show the details of these components.

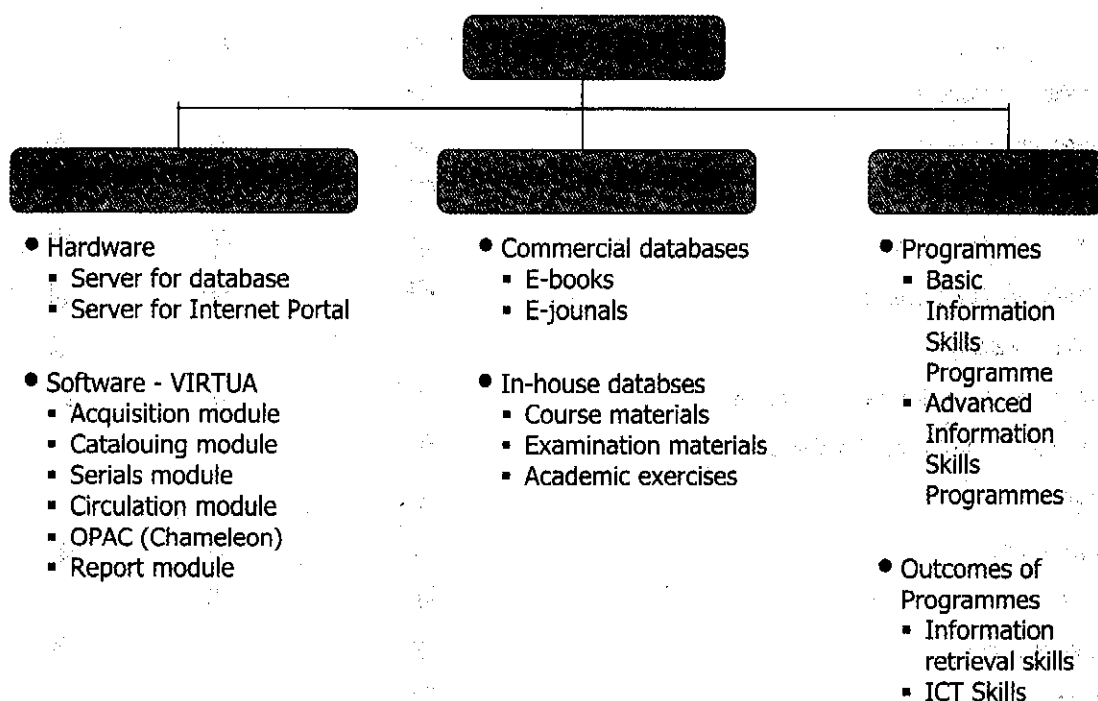


Figure 7: Components of Digital Library

3. Main features of OUM's Digital Library

3.1. Collection

The Digital Library houses a total of seven databases, two are in the form of e-books and the remaining 5 are in the form of e-journals. The details of the databases are given below

E-books

- EBRARY – contains more than 20,000 titles of digital books
- BOOKS24x7 – contains more than 3,527 titles of digital books on ICT

E-journals

- EBSCO HOST – 6,075 journal titles
- EMERALD INTELLIGENCE – 100 journal titles
- PROQUEST EDUCATION COMPLETE – 800 journal titles

- SPRINGER LINK- 484 journal titles
- EIVILLAGE2 – 5,000 journal titles

3.2. Services

OUM Digital Library provides the following services to all our learners: Loans (Main Campus and ULC/RC), Information/Reference Services, Inter-library loan (and Intra-library loan), Document Delivery and Information Skills Training Programme. For more effective use of the Digital Library, OUM provides ongoing training programmes to both its learners and staff. One such programme is called "Information Retrieval Skills and Basic ICT Skills Programme" based on OUM's own Information Trail Model. The model is shown in Figure 8. To further enhance the Internet accessibility of the Digital Library, OUM also provides wireless internet access within the university main campus.

3.3. Digital Collection vs. Courseware

In OUM, electronic items are made available separated from the basic course environment, which is accessible via LMS. This feature allows learners and staff to use the Digital Library not for specific courseware or to take courses online, but to access information at large.

4. Benefits of Digital Collection

The online library catalogue (OPAC), *Chameleon Gateway*, enables learners to search for and download library collections. It is easy to use and has many self-service features including loan renewals, reservation of items on loan to other learners and the checking of items on loan via the latest technology in circulation process. For enhanced searches, the library's *Chameleon i-Portal* provides enhanced methods of searching, including thesaurus searches, selective dissemination of information (SDI) and extended bibliographic services (XBS).

Besides the online catalogue, learners will be able to search and navigate various online databases accessible through the library's homepage including links to the latest periodicals from the web-based resources to enable learners to keep abreast with the latest developments in the borderless world of information.

5. Access to Digital Collection

Access to the Digital Library requires all learners to register with OUM. A learner may access OUM's Digital Library via the university's website, myOUM at <http://www.unitem.edu.my> or through "MyLibrary iPortal". The latter caters to those who want immediate access to a broad range of online resources associated with a defined subject area.

6. Problems in Digital Library

As in the case of LMS, the problems associated with the use of Digital Library in OUM are categorized into the following 4 perspectives; Learners, staff, technology and management/organization.

6.1. Learners' Perspectives

- Usage is very low (less than 20%)
- Awareness problem
- Attitude
- Accessibility problem
- Information retrieving and ICT skills
- Working adults have less time to access DigLib
- No necessity for learners to access

6.2. Staff's Perspectives

- Awareness
- Attitude
- Lack of initiative to encourage the use of DigLib
- Lack of in-house online resources

6.3. Technology Perspectives

- Connectivity problem
- Lack of in-house databases

6.4. Management/Organizational Perspectives

- Cost vs. accessibility
- Cost vs. available online databases
- Cost vs. quality of online databases

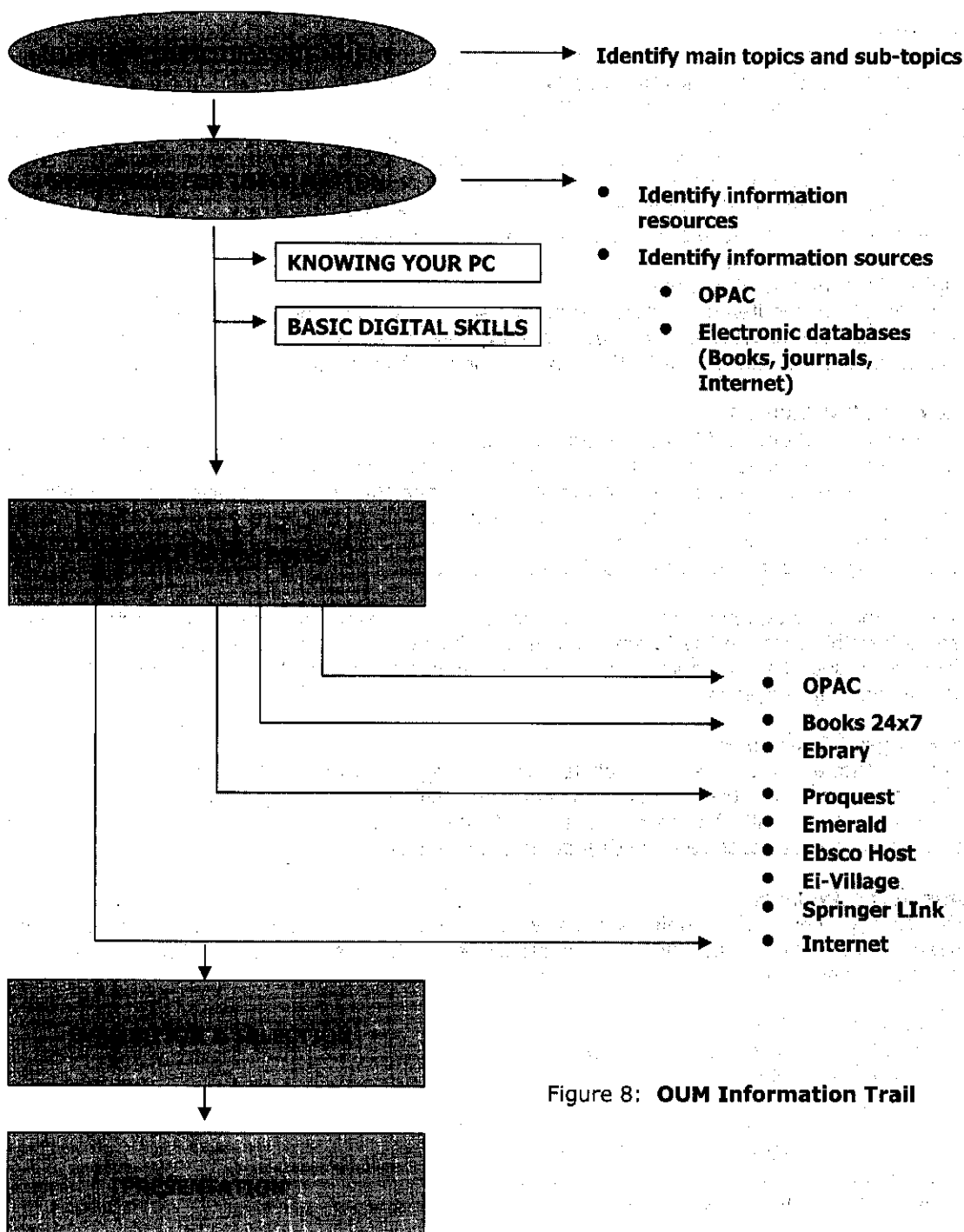


Figure 8: **OUM Information Trail**

SUMMARY AND CONCLUSION

Just like any other new educational institutions, other than having to grapple with the tremendous increase in the number of students, programmes, tutors, subject matter experts, staffs and many others, OUM faces many issues and challenges in coming out with its own e-learning academic model. It requires that OUM adopt the right technology strategy that would not only reduce obsolescence cost but at the same time effective for the faculty to transfer knowledge to their learners in a friendly and accommodating manner. In this paper, we have highlighted the role of ICT in LMS and Digital Library. These are the two key systems in ensuring the successful implementation our e-learning. In summary, the issues and challenges in the use of ICT in enriching learning experiences are:

- The "last mile"
- Digital divide
- Attitude of staff and students
- High set up costs
- Lack of ICT skills/competency (student/tutors)
- Expertise
- Support from Top Management
- Limited on-line resources
- Online evaluation

OUM is still in its infancy stage, and like any other open learning institutions, we do have our fair share of challenges. We must take calculated risks and at the same time we must ensure that we properly document the lessons we learn from both the successes and failures in order to continuously improve. One possible approach that the management could take is to go on a slower pace of development to allow time to train staff, evolve quality systems and encourage an ethos of "getting it right the first time". But this requires quality time, something that customers could not afford. Government wants an expansion in adult education quickly and at minimal cost; students want to graduate quickly; assessors want the quality systems in place immediately and most of all competitors are always ready to take over the market. OUM has made tremendous progress; it can be done and there are risks. Along the way OUM has put aside some time for reflection and try to amend practices to ensure that students are provided with good services and high quality education.

Lastly, it is important that the lessons that we went through be shared with the widest possible audience within the higher education institutions, by forming smart partnership and reduce any tendency to reinvent the wheel.

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